

Applicant(s): Allan Scherr
Serial No.: 10/036,547
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E30-050CON2 (96-031CON2)

In the Specification

Please replace the paragraph beginning at page 5, line 16 with the following:

Private dial-up services, such as WESTLAW® of West Licensing Corporation or LEXIS/NEXIS® of the Reed Elsevier or COMPUSERVE® of CompuServe, Incorporated or AMERICA ONLINE® (AOL®) of America Online, Incorporated, have been able to offer differentiated pricing for networked access to certain kinds of data in their proprietary databases, but doing this is greatly simplified when the choices are limited and relatively few in number. In most cases this is done on the basis of connect time and perhaps some additional fee per database accessed.

Please replace the paragraph beginning at page 11, line 6 with the following:

Figure 1a depicts ~~1a~~ depicts a number of network sites or data nodes using the present invention. In a preferred embodiment, cache management system 10 includes ~~10~~ includes a control device ~~12~~ and ~~12~~ and storage units 14. Control device 12, in this preferred embodiment, includes firmware that executes the logic of the present invention. A cache management system 10 is shown in Figure 1a as being installed

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at various sites on an Internet network. For purposes of illustration, a service provider site 00, as one data node, is shown connected by transmission media T1 to a backbone link site 04. One or more backbone link sites 04, as another data node or other data nodes, may be used for sending and receiving messages through the network. Local site 06 is shown here as a data node connected to the network formed by one or more backbone links 04 via transmission media T2. Local site 06 might be a corporate firewall & gateway site connected to multiple user stations 08 as other data nodes inside an internal corporate network with a local area network as transmission media T3 or it could be a local service provider providing dial-up services to user stations 08 over transmission media T3. Also shown in this Figure 1a is a content provider site 02 as yet another data node.

Please replace the two paragraphs beginning at page 12, lines 4 through 19 with the following:

C3
In a preferred ^{one} embodiment, as shown in Figure 1b, a storage unit 14 comprises a single storage unit the cache method memory device 14 in a cache management system 10a comprises a single storage unit. The cache memory device 14 in the cache management system 10b comprises a large magnetic recording disk array that acts as a cache memory

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device 14, such as a redundant array of independent or
inexpensive disks in a single (RAID) system or multiple RAID
systems installed at the site. ~~Another~~ ^A preferred embodiment
might use even larger disk arrays (as a cache memory device) such
as one or more of EMC Corporation's (of Hopkinton, Mass.)
Symmetrix™ disk array storage devices having as much as 1.1
gigabytes of storage for large backbone link sites 04, such as
shown in cache management system 10c of FIG. 16-1a.

As will be apparent to those skilled in the art, other
types of fast random access storage media can be used as
storage units 14, such as magneto-optical disks, or massive
random access memory arrays. In whatever form, such storage
devices ~~in a given mode~~ act as cache memory device devices that
are coupled to the data network.

Please replace the two paragraphs beginning at page 17, line 10
through page 18, line 2 with the following single paragraph:

C4
In yet another embodiment, the methods to be used for
cache management at one site could be specified by messages
transmitted to it from another site. This is an example of
monitoring operations that respond to received messages to
control method selection. As another example, the monitor used
for cache management could respond to or as a result of
messages transmitted to it by a program or script running at

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the same site, such as a usage pattern analyzer. For example, such a usage pattern analyzer might track the statistics related to the likelihood that a type of page will already be in the cache when requested. If two methods of cache management are used at the site, pre-fetch for some subsets of data and least recently used (LRU) for others, a pattern analyzer might calculate from history data that the probability of pre-fetch data types being in the cache is .5 versus a lower probability for LRU data. In this instance, preferential treatment would be given to the pre-fetch data when deciding which type should be replaced with new data. This is an example of a monitoring operation and automatic response to the monitored conditions.

Please replace the paragraph beginning at page 18, line 3 with the following:

Referring now to Figure 2b, the overall logic of the configurator of the present invention is shown. Here, step 24 from Figure 2a is expanded to show the logic of the configurator. ~~These steps act as a selector means. The logic of the configurator acts~~ ^{which all as a selector means} for selecting one cache memory management method ~~and is~~ ⁾ essentially a series of decision blocks ⁽) for analyzing the data supplied by the operator or by a script or a parameter list or a configuration message. Where a processing

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C5

block is shown in Figure 2b, those skilled in the art will recognize that different types of setup and initialization are being performed in each process block. Switches may be set, addresses or indexes initialized and so on. The configurator, at decision block 24a checks to see if forms will be handled in a storethrough manner (as described below.) If yes, processing needed to effectuate that is performed at step 24b and the configurator proceeds next to decision block 24c to see if data security is to be provided. If yes, processing for that is done at step 24d. As will be apparent to those skilled in the art, various types of protection schemes could be implemented for data that will be stored in the cache, from a simple scheme, such as password protection, to more elaborate protections such as encryption.

Please replace the paragraph beginning at page 20, line 6 with the following:

C6

Now in Figure 2a, once the cache methods selected for the site have been configured, the present invention follows the general flow depicted. At decision block 26, the configurator asks whether data has been requested. If not, the present invention enters a wait state at step 32, until a request comes in. As will be apparent to those skilled in the art, an

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C6 alternative embodiment could create a task or subtask that is activated only when data requests are made and is suspended at other times. As will also be apparent, the configurator, in step 26, monitors operations-data requests at the data node. When data is requested it initiates operations by which the request is processed.

Please replace the paragraph inserted at Page 33 after line 9 with the following paragraph:

C7 FIG. 1c depicts the organization of a typical cache management system 10 and will be apparent to a person of ordinary skill in the art from the previous description. Specifically the cache memory management system includes a control device or cache memory manager 12 and a storage unit or cache method device 14. The cache memory device 14 includes a cache method storage device 100 that stores the various cache memory management methods such as those described as being stored in a cache method storage module 100, that stores the various cache management methods such as the store, through, index caching and other methods shown in FIG. 2b-FIGS. 3 through 12. The cache memory manager 12 includes a method selector module 101 that contains the various controls outlined in FIG. 2B-2b, particularly as shown in FIG. 2B that select a

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cache memory module and initiate its processing. ~~A method storage module 102 will contain one or more of the methods of the cache management methods shown in FIGS. 3 through 12.~~ A monitoring module 103 that performs the functions of step 26 in FIG. 2a. A command send and receive module 104 enables a device that will allow information to be sent to other data nodes or received from other data nodes for the purpose of establishing configurations within the specific data node, as previously described.

Please replace the paragraph beginning at page 33, line 9 with the following:

C8 Simplified embodiments of the present invention could also be implemented as UNIX® of Unix System Laboratories, Inc or Unix shell or Apple ~~McIntosh~~ Macintosh® Applescript® of Apple Computer, Inc. scripts that execute in a server operating as one of the links in the network.
